UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,946	10/24/2003	Konstantin Levit-Gurevich	30320/17232	2114

4743   7590   08/11/2006

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EXAMINER
ALHIJA, SAIF A

ART UNIT	PAPER NUMBER
2128	

DATE MAILED: 08/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
	10/692,946	LEVIT-GUREVICH ET AL.
Office Action Summary	Examiner	Art Unit	
	Saif A. Alhija	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>*24 October 2003*</u>.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>*24 October 2003*</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>*6/1/04, 6/2/04*</u>.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-19 have been presented for examination.

Information Disclosure Statement

2.   The information disclosure statements (IDS) submitted on **1 June 2004 and 2 June 2004**
is in compliance with the provisions of 37 CFR 1.97. Accordingly, the Examiner has considered
the IDS' as to the merits.

Double Patenting

3.   The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in
public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise
extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple
assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the
conflicting claims are not identical, but at least one examined application claim is not patentably distinct
from the reference claim(s) because the examined application claim is either anticipated by, or would
have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226
(Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d
887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In
re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ
644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used
to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided
the conflicting application or patent either is shown to be commonly owned with this application, or
claims an invention made as a result of activities undertaken within the scope of a joint research
agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer.

A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4.   **Claims 1-19 are provisionally rejected** on the ground of nonstatutory obviousness-type double

patenting as being unpatentable over claims 1-26 of copending Application No. 10/395557. Although the

conflicting claims are not identical, they are not patentably distinct from each other because the claims in

the instant application are directed to a plurality of virtual machines in a direct execution environment

and it would have been known to one of ordinary skill in the art at the time of the invention to utilize the

invention as directed in the co-pending application in a plurality rather than singular environment.

This is a <u>provisional</u> obviousness-type double patenting rejection because the conflicting claims

have not in fact been patented.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner
> and process of making and using it, in such full, clear, concise, and exact terms as to
> enable any person skilled in the art to which it pertains, or with which it is most nearly
> connected, to make and use the same and shall set forth the best mode contemplated by
> the inventor of carrying out his invention.

5.   **Claims 1-19 are rejected** under 35 U.S.C. 112, first paragraph, as failing to comply with

the written description requirement. The claim(s) contains subject matter which was not

described in the specification in such a way as to reasonably convey to one skilled in the relevant

art that the inventor(s), at the time the application was filed, had possession of the claimed

invention.

i)   Paragraph 38 of the instant application renders unclear which embodiments apply

to the invention and consequently to the claims. This passage could be construed to mean that the

embodiments in general are not representative of the invention but merely parts of the invention.

Therefore since the claimed invention may not be explicitly disclosed in any single embodiment

it would therefore require a combination of embodiments which would not reasonably convey to

one skilled in the relevant art which aspects of which embodiments to use to create a complete

embodiment of the invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6.   **Claims 17-19 are rejected** under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

i)   Claim 17 contains the phrase "is not impeded." It is unclear what is meant by

impeded and therefore the claim is rendered vague and indefinite.

ii)   The phrase discussed above is not defined by the claims, the specification does

not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art

would not be reasonably apprised of the scope of the invention.

All claims dependent upon a rejected base claim are rejected by virtue of their

dependency.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7.   **Claims 1-19 are rejected** under 35 U.S.C. 102(b) as being clearly anticipated by **Devine et al. "Virtualization System Including a Virtual Machine Monitor for a Computer with a Segmented Architecture"**, U.S. Patent No. **6,397,242**, hereafter referred to as **Devine.**

Regarding Claim 1:

Devine discloses An article comprising a machine-accessible medium having stored thereon instructions that, when executed by a machine, cause the machine to:

execute a host code in a host environment; **(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines 51-59. Column 24, Lines 2-13. Figures 1-2, and 7-8)**

create a plurality of virtual machines in a virtual environment; **(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines 51-59. Column 24, Lines 2-13. Figures 1-2, and 7-8)**

transfer a virtual code from the host environment to the virtual environment; **(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines 51-59. Column 24, Lines 2-13. Figures 1-2, and 7-8)**

and execute virtual code on at least one of the virtual machines. **(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines 51-59. Column 24, Lines 2-13. Figures 1-2, and 7-8)**

Regarding Claim 2:

Devine discloses The article of claim 1, having further instructions that, when executed

by the machine, cause the machine to: create the plurality of virtual machines in a direct

execution environment; and execute the host code in a host operating system environment.

(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines 51-59. Column 24, Lines 2-13.

Figures 1-2, and 7-8)

Regarding Claim 3:'

Devine discloses The article of claim 2, having further instructions that, when executed

by the machine, cause the machine to: provide a monitor within the host operating system

environment, wherein the monitor controls entry to and exit from the direct execution

environment. **(Column 5, Lines 12 – Column 6, Line 52)**

Regarding Claim 4:

Devine discloses The article of claim 3, having further instructions that, when executed

by the machine, cause the monitor to: control transfer of virtual code between the host

environment and the virtual environment based on a virtualization event attempted by at least

one of the virtual machines. **(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines 51-**

59. Column 24, Lines 2-13. Figures 1-2, and 7-8)

Regarding Claim 5:

Devine discloses The article of claim 4, having further instructions that, when executed

by the machine, cause the monitor to gain control over the virtualization event from the direct

execution environment. **(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines 51-59. Column 24, Lines 2-13. Figures 1-2, and 7-8)**

Regarding Claim 6:

Devine discloses The article of claim 5, having further instructions that, when executed by the machine, cause the monitor to return execution to the direct execution environment after a virtualization operation. **(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines 51-59. Column 24, Lines 2-13. Figures 1-2, and 7-8)**

Regarding Claim 7:

Devine discloses The article of claim 5, having further instructions that, when executed by the machine, cause the monitor to pass control to a platform simulator within the host environment for simulation of the virtualization event. **(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines 51-59. Column 24, Lines 2-13. Figures 1-2, and 7-8)**

Regarding Claim 8:

Devine discloses The article of claim 4, having further instructions that, when executed by the machine, cause the monitor to access a list of virtualization events. **(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines 51-59. Column 24, Lines 2-13. Figures 1-2, and 7-8)**

Regarding Claim 9:

Devine discloses The article of claim 3, having further instructions that, when executed by the machine, cause the monitor to: in response to an exit from the direct execution environment, store state data; and restore the stored state data prior to entry to the direct execution environment. **(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines 51-59. Column 24, Lines 2-13. Figures 1-2, and 7-8)**

Regarding Claim 10:

Devine discloses The article of claim 1, wherein the virtual code includes a plurality of virtual codes each executing on a separate one of the plurality of virtual machines. **(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines 51-59. Column 24, Lines 2-13. Figures 1-2, and 7-8)**

Regarding Claim 11:

Devine discloses A method comprising: accessing simulated instruction codes in a host environment operating on a central processing unit (CPU) implementing Virtual Machine Extensions; launching a plurality of virtual machines in a virtual environment on the CPU; virtualizing a CPU state associated with the simulated instruction codes; and executing at least one of the simulated instruction codes on at least one of the plurality of virtual machines. **(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines 51-59. Column 24, Lines 2-13. Figures 1-2, and 7-8)**

Regarding Claim 12:

Devine discloses The method of claim 11 further comprising: detecting an occurrence of a virtualization event in any one of the plurality of virtual machines; in response to detecting the virtualization event, exiting the virtual environment; and analyzing the virtualization event. **(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines 51-59. Column 24, Lines 2-13. Figures 1-2, and 7-8)**

Regarding Claim 13:

Devine discloses The method of claim 12 further comprising: determining whether the virtualization event is a complex event; and if the virtualization event is not a complex event, virtualizing the simulated instruction code associated with the virtualization event. **(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines 51-59. Column 24, Lines 2-13. Figures 1-2, and 7-8)**

Regarding Claim 14:

Devine discloses The method of claim 13 further comprising re-entering the virtual environment after the simulated instruction code associated with the virtualization event is virtualized. **(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines 51-59. Column 24, Lines 2-13. Figures 1-2, and 7-8)**

Regarding Claim 15:

Devine discloses The method of claim 13 further comprising: if the virtualization event is a complex event, de-virtualizing the CPU state; and simulating the simulated instruction code

associated with the virtualization event. **(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines 51-59. Column 24, Lines 2-13. Figures 1-2, and 7-8)**

Regarding Claim 16:

Devine discloses The method of claim 12, further comprising: storing the CPU state upon exiting the virtual environment; and restoring the stored CPU state upon re-entering the virtual environment. **(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines 51-59. Column 24, Lines 2-13. Figures 1-2, and 7-8)**

Regarding Claim 17:

Devine discloses A system comprising: hardware to generate and control a plurality of virtual machines that each are capable of executing simulated instruction code, wherein the hardware is able to create an abstraction of a real machine so that operation of a real operating system on the computer system is not impeded; a direct execution environment to execute the simulated instruction codes and associated data as virtual codes; a plurality of virtual machines formed within the direct execution environment; and a host environment for controlling exit from and entry to the direction execution environment. **(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines 51-59. Column 24, Lines 2-13. Figures 1-2, and 7-8)**

Regarding Claim 18:

Devine discloses The system of claim 17, wherein the host environment comprises: a monitor to generate the plurality of virtual machines and to perform virtualization operations;

and a platform simulator to perform simulations of virtualization events. **(Column 5, Lines 12 -**

Column 6, Line 52. Column 10, Lines 51-59. Column 24, Lines 2-13. Figures 1-2, and 7-8)

Regarding Claim 19:

Devine discloses The system of claim 18, wherein the monitor gains control from the

direct execution environment whenever at least one of the plurality of virtual machines attempts

to perform a virtualization event. **(Column 5, Lines 12 - Column 6, Line 52. Column 10, Lines**

51-59. Column 24, Lines 2-13. Figures 1-2, and 7-8)

Conclusion

8.   All Claims are rejected.

9.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Saif A. Alhija whose telephone number is (571) 272-8635. The

examiner can normally be reached on M-F, 11:00-7:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kamini Shah can be reached on (571) 272-2279. The fax phone number for the

organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAA

August 3, 2006